

REMARKS/ARGUMENTS

After entry of this paper, the pending claims are 3, 6, 8, 9 and 45-64. Claims 1-2, 4-5, 7, and 10-44 are cancelled without prejudice. Claim 3 is amended to specify that the peptide or polypeptide mimics Lewis antigen SA-Le^a or SA-LeX, and is 7-15 amino acids in length. This amendment is supported by original claim 4 and at page 10, lines 14-15. Claim 6 is amended to correct a minor clerical error. Claim 8 is amended to correct dependency.

New claims 45-65 are added to recite certain embodiments of the present invention. Claim 45 is supported at page 15, lines 15-28 of the specification. New claims 46, 49 and 52 parallel original and amended claims 6-8, but are provided in independent form. New claims 47-48, 50-51, 53-54, 57-58, 60, and 63-64 parallel each other and are supported by original claim 9 and page 15, lines 15-28. Claim 55 is supported by page 17, lines 20 *et seq.* New claim 56 incorporates the additional peptide sequences of Table 5, page 43 of the specification. New claim 59 provides peptides and polypeptides that consist only of naturally occurring amino acids and are supported by page 13, line 28. New claims 61-64 provide peptides and polypeptides that have been modified and are supported by page 13, line 17 through page 14, line 27. Support for the new claims is also found in the original specification and claims on page 10, lines 9-17 and throughout the remaining portions of the specification. No new matter is added by these amendments

35 USC § 102(b) Rejection

The Examiner rejected claims 3-5, 9, and 44 under 35 USC § 102(b) over US Patent No. 5,164,615 (Wong).

The Examiner asserted that the sialyl Lewis X mimetics of Wong are peptides and ligands for adhesion molecules and therefore anticipate Applicant's invention.

Applicants respectfully request reconsideration and withdrawal of this rejection for the following reason.

Claim 5 has been canceled, thereby mooted the outstanding rejection as applied to this claim.

Applicants' Invention

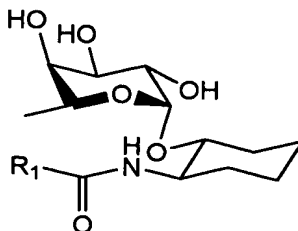
Applicants' invention of amended claim 3 is drawn to peptides or polypeptides that mimic a carbohydrate ligand of an adhesion molecule, the ligand being a Lewis SA-Le^a or SA-LeX antigen. In one embodiment, the peptide or polypeptide is from 7 to about 15 amino acids in length. The amino acids of the peptides and polypeptides of Applicants' invention can also be naturally or unnaturally occurring. The peptides and polypeptides of Applicants' invention are exemplified in the specification on page 10, line 26 through page 11, line 13 and page 12, lines 27-30. All of these examples of peptide-mimetics (peptides) include amino acid sequences having two or more amino acids linked together. The peptides and polypeptides can also be modified, such as described in new claims 61-64, or can only include amino acids that are naturally occurring, such as described in new claims 59-60.

Peptides are conventionally described as compounds having two or more amino acids linked together and polypeptides are conventionally described as compounds having two or more peptides linked together. These definitions for peptides and polypeptides are generic and are understood by those having elementary knowledge of general biology.

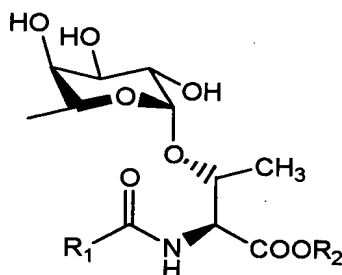
Wong does not teach or suggest peptides or polypeptides, particularly those that mimic a carbohydrate ligand of an adhesion molecule

Wong is drawn to sLe^x mimetics which are fucoseptides. Wong broadly describes the sLe^x fucoseptide mimetic as a compound having a cyclohexane bridge or branched alkyl bridge between a fucose subunit and a "peptide moiety".

One example of this bridged cyclohexane fucoseptide compound has the following formula, where R₁ includes the groups set forth in col. 5, lines 5-40:



Another example of this bridged alkyl fucopeptide compound has the following formula, where R_1 includes the groups in col. 5, line 60 through col. 6, line 25 and R_2 is H or C_{1-6} alkyl:



None of the R_1 groups (i.e., the “peptides”) of Wong are 7 to about 15 amino acids in length. At best, Wong only provides peptides that are two or three amino acids in length. Therefore, Wong cannot teach or suggest the peptides or polypeptides of claims 3, 6, 8, 9, and 55 of Applicants’ invention, which peptides and polypeptides must contain from 7 to about 15 amino acids.

Further, the peptides of Wong include amino acids or fragments thereof *modified* by attachment to a cyclohexane and a sugar moiety. Wong does not discuss peptides consisting only of *naturally* occurring amino acids, such as is provided by claims 59-60 of Applicants’ invention.

Wong also does not discuss modified peptides and polypeptides, where the modification is selected from (i) D amino acids, (ii) a moiety which can provide a net positive charge, (iii) a spacer of greater than 3 amino acids interposed between the N- and C-termini to cyclize the peptide, (iv) free hydroxyl on the C-terminus, (v) an amide or imide on the C-terminus, and (vi) a sequence of one or up to about 15 additional amino acids on the C-terminus. Therefore, Wong does not teach or suggest claims 61-64 of Applicants’ invention.

Therefore, Wong does not teach or suggest the peptides or polypeptides of Applicants’ invention.

Reconsideration of this rejection is requested.

35 USC § 112, First Paragraph Rejection

The Examiner rejected claims 9 and 44 under 35 USC § 112, first paragraph.

The Examiner asserted that it is not clear what structural features are required to produce a molecule with enhanced stabilization or binding properties.

Applicants respectfully requests reconsideration and withdrawal of this rejection for the following reasons.

Claim 44 has been canceled, thereby mooting the outstanding rejection as applied to this claim.

As the Examiner is aware, an objective standard for determining compliance with the written description requirement is:

“[D]oes the description clearly allow persons of ordinary skill in the art to recognize that he or she invented what is claimed”.¹

Claims 9, 47, 50, 53, and 63 of Applicants’ invention are drawn to peptides or polypeptides modified to enhance stability or adhesion molecule binding. The claims are fully supported by the specification, and particularly in original claim 9. Further, on page 13, line 11 through page 15, line 27 of Applicants’ specification, various modifications are provided which would provide a peptide or polypeptide with enhanced stability or binding.

One of skill in the art would readily be able to prepare peptides or polypeptides with enhanced stability or binding by utilizing Applicants’ disclosure describing various peptide modifications and that such modifications may provide a peptide or polypeptide with enhanced stability or binding. One of skill in the art would also readily be able to use techniques known to those skilled in the art to determine if the modified peptides or polypeptides had enhanced stability and/or binding. Undue experimentation by one of skill in the art would not be required for one to practice the Applicants’ invention of claims 9, 47, 50, 53, and 63.

Applicants therefore assert that the specification provides more than an adequate written description of the subject matter provided in claims 9, 47, 50, 53, and 63. Applicants further assert that it is not necessary to amend claims 9, 47, 50, 53, and 63 to

¹ In re Gosteli, 872 F.2d 1008, 1012, 10 USPQ2d 1614, 1618 (Fed. Cir. 1989).

recite any specific modifications specifically described in the specification in order to fulfill the written description requirement of 35 USC § 112.

Reconsideration of this rejection is requested.

Allowable Subject Matter

The Examiner had previously indicated that claims 6-8 are drawn to allowable subject matter since the sequences are free of the prior art.

Applicants believe that claims 46, 49 and 52, which parallel claims 6-8, and are presented in independent form are in condition for allowance for the same reasons.

Supplemental Information Disclosure Statement

Applicants have also enclosed with this amendment and RCE, a new Supplemental IDS with attached copies for consideration by the Examiner.

The Director is hereby authorized to charge any deficiency in any fees due with the filing of this paper or credit any overpayment in any fees to our Deposit Account Number 08-3040.

Respectfully submitted,

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